

# *LLNL Report*

For USNDP

Nuclear Data Week, November 2016

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# LLNL contributions to USNDP

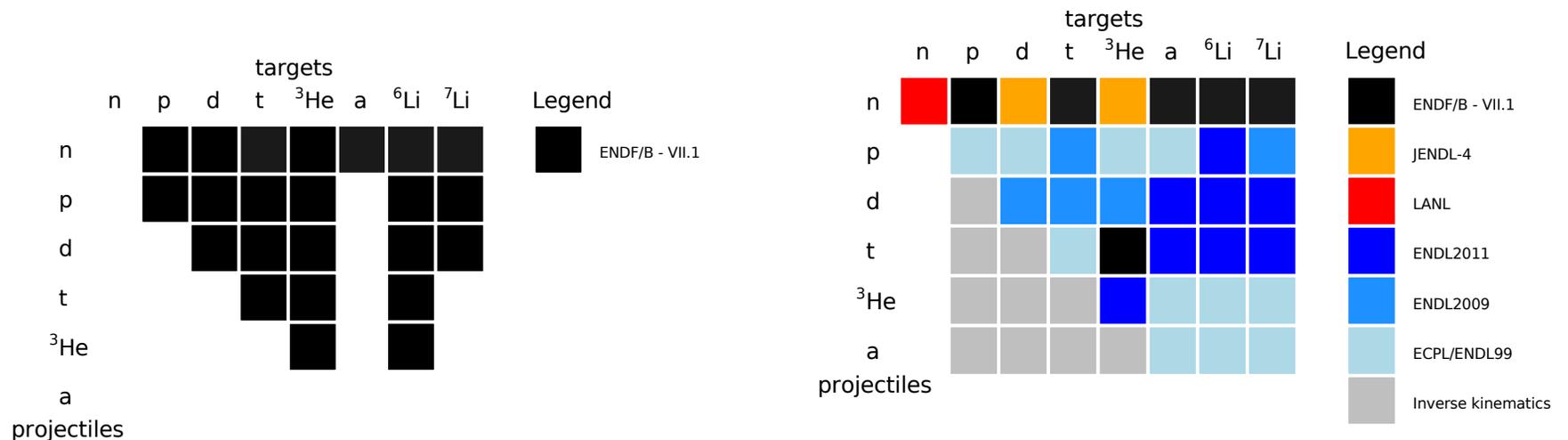
- 0.3 FTE
- Coordinate LLNL nuclear data efforts with USNDP/CSEWG
- Testing new ENDF/B-VIII evaluations
  - Criticality testing: Marie-Anne Descalles, Pavlos Vranos  
(presented this week by Eric Jurgenson)
- Revitalize national skills for R-matrix evaluations
  - With IAEA, R-matrix workshops, and GND-interchange codes.
- Leverage LLNL programmatic funding to provide evaluations for inclusion in ENDF
  - Ian Thompson, Eric Jurgenson

# Current Funding Scenario

- National Coordination
  - Coordinate Nuclear Data Efforts with USNDP/CSEWG
    - Attend USNDP/CSEWG meetings
  - Use R-matrix GND tools to translate, verify (and improve) proposed evaluations
  - R-matrix methods: deliver keynote tutorials at Santa Fe workshop
- International Coordination
  - Attend IAEA consultants meeting on R-matrix methods
- Provide LLNL evaluations for ENDF
  - USNDP funds the translation over to ENDF (after ASC/PEM funds evaluation work at LLNL)
  - Delivering LLNL charged-particle evaluations for ENDF/B-VIII release

# ENDF Evaluations

- Fixes to neutron evaluations for Be7, U239, Ta180,
- Charge Particle Evaluations by LLNL
  - Detailed overview in CSEWG Evaluations Committee
  - ~30 evaluations in use at LLNL that could be considered for next ENDF release
  - Effort now nearly finished (much by Caleb!), to convert ENDL into ENDF evaluations
    - Seeking LCT=4 option in ENDF6 format to use lab frame for breakup products.



Awaiting LCT=4 option, in October 2016 submitted from LLNL the ENDF files for p+a, t+a, h+a, a+a, p+<sup>7</sup>Li, d+<sup>7</sup>Li, t+<sup>7</sup>Li, h+h

# Current Activities

- National & International Coordination
  - Coordinate Nuclear Data Efforts with USNDP/CSEWG
    - Attend data revision workshops at BNL (2015, and 2016 remotely).
    - Attend R-matrix meetings
    - Attend USNDP/CSEWG meetings
- Use GND to make R-matrix interchange code
  - Collaborate on R-matrix evaluations with Sofia Quaglioni
- Provide LLNL evaluations for ENDF
  - ASC/PEM funds evaluation work at LLNL
  - USNDP funds the translation over to ENDF
  - LLNL light-ion evaluations to GND and ENDF format
  - Develop new light-ion evaluations from R-matrix fits
    - Verify recent CIELO R-matrix fits.



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### FY16 Metrics Table

NSR Compilations	0
EXFOR Compilations	0
XUNDL Compilations	0
ENSDF Evaluations submitted	0
ENDF Evaluations	0 (see below)
Disseminations (in thousands)	5 (approx)
Articles	0
Reports	2
Invited Talks	15

**A-chains to be submitted in FY16:** N/A

**A-chains to be submitted in FY17:**

**ENDF evaluations in FY17: 8 so far + 8 to come**

### FY16 FTE Table

PhD Permanent	0.27
PhD Temporary	0
Tech. & Admin.	0.05
Grad. Student	0
Total	0.32

\$133k FY16 funding

\$98k FY15 carry over

\$146k FY16 total costs

\$86k rollover into FY17

# USNDP Continued Support of GND

- LLNL programs continuing to support core development at reduced level
- USNDP continue to support GND efforts
  - Coordinate GND efforts with CSEWG formats committee
    - Involved attendance at CSEWG
  - Lead effort for international adoption
    - Involves attendance at WPEC subgroup 38

# Lead international effort to develop modern nuclear data format (GND)

- WPEC Subgroup 38 is underway
  - 38 Beyond the ENDF format: A modern nuclear database structure
    - Coordinator: D. McNabb
- Third meeting: Dec 9-11, 2013 (Tokai, Japan)
  - Collected feedback from each sub-task
  - Update the work plan
- WPEC Meeting, OECD Headquarters, 10-11 May 2016